### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

### (19) World Intellectual Property Organization

International Bureau



## 

(43) International Publication Date 10 February 2005 (10.02.2005)

**PCT** 

# (10) International Publication Number WO 2005/011733 A1

- (51) International Patent Classification<sup>7</sup>: A61K 39/108, 39/112, C07K 14/25, 14/245
- (21) International Application Number:

PCT/EP2004/051522

- (22) International Filing Date: 16 July 2004 (16.07.2004)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 03077266.9

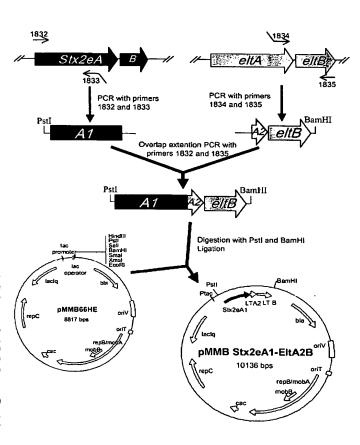
21 July 2003 (21.07.2003)

- (71) Applicant (for all designated States except US): AKZO NOBEL N.V. [NL/NL]; Velperweg 76, NL-6824 BM Arnhem (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): VERMEIJ, Paul [NL/NL]; Lepelstraat 3, NL-5845 BK St. Anthonis (NL).

- (74) Agents: KEUS, J et al.; Intervet International B.V., P.O. Box 31, NL-5830 AN Boxmeer (NL).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: HYBRID TOXINS COMPRISING SHIGA-LIKE TOXIN SUBUNITS FUSED TO ESCHERICHIA COLI HEAT LABILE ENTEROTOXIN SUBUNITS AND VACCINES THEREOF



(57) Abstract: The present invention relates to a hybrid bacterial toxin subunit, to a hybrid bipartite bacterial toxin and to nucleic acid molecules comprising a nucleotide sequence encoding such bacterial toxins. Furthermore, the invention relates to vaccines comprising said bacterial toxins and to their use in vaccines. Finally, the invention relates to methods for the preparation of such vaccines and to the use of such bacterial toxins for the manufacture of such vaccines.

### WO 2005/011733 A1



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### Published:

- with international search report
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau